

combination of references cited in the rejection. Further, there is a teaching away from making the combination of references cited. Finally, the Applicants assert that the combination of references is a combination of non-analogous art and is therefore an improper combination.

The present invention is drawn to a method for treating a contaminated fluid comprising the steps of packing a column with a cellulose-based material, passing the contaminated fluid through the packed column, where the contaminants are adsorbed onto the cellulose-based material and when the cellulose-based material is spent, removing the spent cellulose-based material from the column and composting the spent cellulose-based material to reduce its volume and degrade and concentrate the removed contaminants.

None of the references taken separately or considered in combination disclose the required element that the process of the present invention be an adsorption process.

The references cited in the present rejection do not provide a teaching or suggestion to combine the references so as to arrive at the invention of an “adsorption” process wherein the spent adsorbent is disposed of by composting, as claimed by the Applicants. Further, there is no suggestion of a likelihood of success for such a combination, but, to the contrary, the primary reference cited by the Examiner, Sato et al., would strongly teach away from the combination. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in the Applicant’s disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

The rejection asserts that Sato et al. is drawn to an oil-adsorbing composition. The distinctive element of the Sato et al. invention is a cross-linked polymer that, in fact, is employed in an absorption process not an adsorption process, as claimed by the Applicants.

First and foremost, Sato et al. and Burnham et al. clearly have misused the term “adsorption” in their respective patent disclosures. There is nothing in the disclosure of Sato et al. or Burnham et al. that, to one of ordinary skill in the art, would suggest an adsorption process, as claimed by the Applicants, except for the obvious misuse of the term “adsorption.”

Importantly, while it is permitted for an inventor (such as Sato et al. or Burnham et al.) to define their invention using their own terms, it does not follow that when a patentee misuses a term (such as “adsorption”) thereafter the true meaning of the term and its distinctiveness from the circumstances of its misuse will forever be altered or lost to others who, unlike the patentee who misused the term, have the level of knowledge in the art to know the true and accepted meaning of that term.

That is precisely the situation presented in the present rejection. Both Sato et al. and Burnham et al. have completely confused the term “adsorption” with an entirely different process, “absorption,” and that obvious misuse of the term has been imposed by the Examiner on the claims of the present invention. Fortunately, both Sato et al. and Burnham et al. provide more than sufficient evidence within their respective patent disclosures to demonstrate their own lack of understanding of the term “adsorption” and to demonstrate that both of those references are directed entirely to an absorption process not an adsorption process as claimed by the Applicants.

Sato et al. is directed to the removal of free petroleum products from within water. The petroleum products present in the disclosure of Sato et al. are disclosed only as being present in free form or emulsified within the water phase. In either case, the oil is found within the water matrix as a separate oil phase and not in solution. It is well understood by

one of ordinary skill in the art of the environmental engineering industry, that the removing of free product or the removal of a separate phase (as is the case in Sato et al.) is **not adsorption** such as claimed in the present application. It is instead an absorption process. In direct contrast to the process of Sato et al., Applicants invention, as claimed, is particularly directed to an **adsorption** process; that is, it is directed to treating fully soluble pollutants and not free phases within a water matrix. While Sato et al. freely misuses the term “adsorption” it does not teach or suggest an adsorption process. In fact, Sato et al. after completion of its disclosed process states that activated carbon (a conventional approach) can subsequently be used to treat the water for any soluble COD, which remains. Thus Sato et al., discloses that its process is **not intended or capable** of being used as a process of treating soluble COD. As such, Sato et al. is completely inadequate and fails as a primary reference to disclose a major element of the Applicants invention; that of an “adsorption” process.

Further, the principle importance of the invention of Sato et al. is the cross-linked polymer material that is used. Sato et al. teaches that the cross-linked polymer composition, which is used in what is actually its **absorption** process is to be incinerated after it has been used in the oil removing process. That teaching of disposal by incineration is not surprising in that the claimed product of Sato et al., the cross-linked polymer composition, would certainly not be considered by one of ordinary skill in the art (environmental engineering) as a material that could possibly be disposed of by composting. Importantly, the cross-linked polymer composition of Sato et al. is the distinctive aspect of the invention and that polymer material is the focus of all claims in the Sato et al. reference. For that reason, there is absolutely no teaching in Sato et al. that would suggest, teach **or even permit** the substitution of the cross-linked polymer material (the principle subject of the invention) with any material

that would be capable of being composted. It would be inappropriate to make the polymer invention of Sato et al. a nullity; that is, to make the cross-linked polymer material non-existent or inoperable as claimed, by intentionally discarding the principle element of the invention and selecting those pieces that are left behind as a shell in which to substitute elements or material of the Examiner's choosing. The combination of Sato et al. with the teaching of Wieser-Linhart could only be accomplished by discarding the invention of Sato et al. and substituting a material, which is selected using the Applicants invention as a template. This would constitute impermissible hindsight. Importantly, "If the modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the reference are not sufficient to render the claims *prima facie* obvious." In re Ratti, 270 F.2d 810, 123 USPQ 349 (CCPA 1959). Further, even if a combination of Sato et al. and Wieser-Linhart were possible, the combination would not disclose or suggest an adsorption process. The Burnham et al. reference does not cure this deficiency.

Turning to Burnham et al., that reference is cited by the Examiner only for the purpose of teaching that kenaf can be used as an effective "adsorbent." Here also, as mentioned earlier, the Burnham et al. reference obviously misuses the term "adsorbent." Burnham et al., as will be shown, is devoted entirely to an absorption process not an adsorption process, as claimed by the Applicants. As such, Burnham et al. is, like Sato et al., misusing the term "adsorption" as if it were freely interchangeable with the term "absorption." One of ordinary skill in the art would not see such interchangeability of terms as permissible. The processes are separate and distinct.

The Burnham et al. reference is directed to an elaborate apparatus and method for the

application of magnetic fields and ultraviolet radiation for the disinfection of contaminated fluids. Burnham et al. includes an oil removing step to prevent **oil droplets** from interfering with the disinfection process of the invention. The removal of oil droplets is nothing other than an absorption process not an adsorption process, as claimed by Applicants. Burnham et al. is quite ambiguous and confused in listing numerous “adsorbents” (plastic, cellulosic, polymeric, etc.) and even including a statement about “adsorbing” many times its weight in oil; a statement that on its face, to one of ordinary skill in the art, would clearly indicate that the process of Burnham et al. is one of “absorption” not “adsorption.” Burnham et al. does not teach or suggest an adsorption process and as indicated above is obviously confused as to the meaning of the terms. The process disclosed by Burnham et al. simply cannot possibly be seen as having any relation to an adsorption process. Accordingly, the statement of Burnham et al., upon which the Examiner has relied, that kenaf can be used as an effective “adsorbent,” is a meaningless reference. Because Burnham et al. obviously has confused its own absorption process with an adsorption process any statement that Burnham et al. makes with regard to adsorption would be absurd and without credibility.

Further, at Col. 17, lines 2-20, Burnham et al. teaches one embodiment of the invention to include the use of an oil separation unit (703), which can include kenaf as an oil adsorbent. As indicated above, the process taking place in this oil separation unit (703) is in reality “absorption” not “adsorption.” In this one embodiment, the mislabeled adsorbent material is taught as being confined within the oil separation unit (703), a situation totally unlike the circulating-slurry process disclosed in Wieser-Linhart. As such these two references, if combined with the teaching of Sato et al., make a clearly non-analogous combination. The process of absorption in the oil separation unit of Burnham et al. or the

polymer-packed column of Sato et al. hardly seems combinable with the circulating-slurry technology of Wieser-Linhart. Further, every embodiment of Burnham et al. teaches the absolute necessity of the magnetic unit (702) and the UV disinfecting unit (704) to adequately clean and disinfect the fluid being treated. Thus, the device and process disclosed in Burnham et al. is far different from the process and device taught by Sato et al. and is particularly distinct from that taught by Wieser-Linhart. Finally, there is no teaching or suggestion in Burnham et al. that would motivate one of ordinary skill in the art to remove any spent absorbent (not adsorbent) material from the oil separation unit (703) for the purpose of composting that material. Therefore, while Burnham et al., in its confusion, attempts to teach that Kenaf is an effective adsorbent material, it does so in a disclosure that actually teaches an absorption process combined with the requirement for a magnetic unit (702) and a UV unit (704) to be effective. Because Sato et al. fails to teach any possible substitution of the cross-linked polymer material and Burnham et al. consistently teaches the requirement for the magnetic unit and the UV unit for an operable invention, one of ordinary skill in the art would not be motivated to replace the cross-linked polymer of Sato et al. with a kenaf material and still have any expectation of success. Sato et al. would suggest failure without its principle invention of a cross-linked polymer and Burnham et al. would suggest failure as combining the use of kenaf alone in a system that lacks the magnetic unit (702) and the UV unit (704) that are considered principle to the invention. Finally, as demonstrated above, a combination of Sato et al. with Burnham et al. would still be completely lacking of a teaching or suggestion of an adsorption process, an element that is central to the present invention.

Wieser-Linhart fails to make up for the deficiencies of Sato et al. or Burnham et al. The present rejection mis-characterizes the Wieser-Linhart process as being, "... a similar

process for adsorbing organic contaminants from a liquid ..." (Emphasis added).

In fact, the process of Wieser-Linhart is not remotely similar to the adsorption process, which is claimed by the Applicants. Wieser-Linhart is only similar to the absorption process disclosed in the other two references cited by the Examiner in that it also is an absorption process. The disclosure of Wieser-Linhart is directed exclusively to a process of metering wood dust into circulating water to create a circulating water-wood dust slurry that binds emulsified resins and tar as it circulates through the apparatus. The circulating contaminant removal system of Wieser-Linhart is not at all similar to a packed-column contaminant removal system, wherein the kenaf is immobilized in a column, such as claimed by Applicants. Wieser-Linhart fails to teach or suggest the use of a column filtration system, much less a column packed with kenaf through which a contaminated fluid is passed for the purpose of removing those contaminants by adsorption. The circulating-slurry contaminant removal process (absorption) of Wieser-Linhart is therefore not analogous to the packed column adsorption system disclosed by the Applicants. The process of the present invention and the process taught by Wieser-Linhart are two separate and distinct processes which necessarily operate in totally different manners and require totally different devices in order to be operable. The circulating slurry process of Wieser-Linhart is not adaptable to a packed column contaminant removal method (adsorption) such as that claimed by the Applicants. As shown in Figure 1 of Wieser-Linhart and described at Column 3, lines 23-30, a wood dust supply device (11), which includes a wood dust silo (12) is provided to spray the wood dust into the pre-wetting device (2) for mixing with the waste gas supplied by waste gas line (1). There is no teaching or suggestion in the cited reference that would lead one of ordinary skill in the art to assume that the sludge (wood dust-contaminant product) removal from container

(3) and subsequent disposal thereof by burning or composting would be adaptable to a kenaf-packed column adsorption system absent the use of inappropriate hind-sight in making such an assumption. Even then, it would be required to ignore the distinction between an absorption process and the claimed adsorption process of the present invention.

Further, the combination of the three cited references in the present rejection represent a combination of non-analogous art, which is inappropriate under MPEP 2141.01(a). The device used and the process of Wieser-Linhart are not analogous to the devices or processes taught by either the Sato et al. or Burnham et al. references. They are separate and distinct processes employing devices of distinctively different structure. As clearly demonstrated by the discussions of the three references provided above, the operation and devices employed with the methods of the cited references are vastly different. The circulating-slurry process and device taught by Wieser-Linhart is particularly distinct from the references with which it is combined.

As discussed above, Sato et al. is directed to a composition including a cross-linked polymer with inorganic materials which can be useful in an absorption process for separating out the oil present in waste water. (See Col. 2, lines 8-9 and 49-51.) The packed-column process of Sato et al. and the equipment necessary to practice that process are completely different from that of the circulating-slurry process disclosed by Wieser-Linhart. The structures required and the operation of the processes of these two cited references are completely different, a difference which is reflected in the U.S. Patent and Trademark Office classification of the two references: Sato et al. being classified in Class/subclasses 252/430, 428, 429 R, 431 C; and 210/36, while Wieser-Linhart is classified in Class/subclasses 55/228, 233; 95/211; 210/167, 188, 295.1, and 206. Thus, the structure, process, and patent

classification of the two cited references are not at all similar. Further, as discussed above, it would be an impossibility to modify the invention of Sato et al., a cross-linked polymer composition to incorporate the teaching of Wieser-Linhart, that teaches composting of spent material without rendering the invention of Sato et al. a nullity. The disclosed methods of dealing with the spent material teach away from each other due to the non-biodegradable nature of the material of Sato et al. Therefore there is no teaching in Sato et al. for one of ordinary skill in the art to be motivated to replace the cross-linked polymer with a material as used in Wieser-Linhart.

As discussed above, the absorption process and device of Burnham et al. are quite distinct from the packed column device and process of the Applicants invention and further is descriptive of a process that could not be considered analogous art to the Wieser-Linhart circulating-slurry process. The distinctiveness of the Burnham et al. from Wieser-Linhart is also made clear by their different invention classifications. Burnham et al. is classified in Class/subclasses 422/24, 1 and 210/695, 748, 455.11; while Wieser-Linhart is classified in Class/subclass 55/228, 233; 95/211; 210/167, 188, 295.1, and 206. The process, the structure of the device required, and the U.S. Patent and Trademark classification of the two combined references, which are combined in the present rejection are not analogous.

In view of the above remarks, Applicants respectfully assert that the Wieser-Linhart circulating-slurry process and equipment structure is non-analogous art to the Sato et al. and Burnham et al. references. Therefore, the rejection under 35 U.S.C. § 103(a), which relies on that improper combination should be withdrawn.

Further, the references do not provide a teaching to combine or a likelihood of success of such a combination as is required to show obviousness of the present invention. In fact, as

discussed above, the invention of Sato et al. teaches away from replacing the cross-linked polymer material with any other material, to include a biodegradable material such as kenaf. Thus, the combination of Sato et al. in view of Burnham et al., and further in view of Wieser-Linhart does not teach or suggest the Applicants invention as claimed and for reasons stated above is an improper combination. Accordingly, withdrawal of the rejection is respectfully requested.

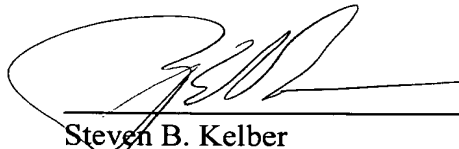
CONCLUSION

In light of the above, Applicants believe that this application is now in condition for allowance and therefore requests favorable consideration.

If any points remain in issue which the Examiner feels may be best resolved through a personal or telephonic interview, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

Respectfully submitted,

PIPER RUDNICK LLP



Steven B. Kelber
Registration No. 30,073
Attorney of Record

1200 Nineteenth Street, N.W.
Washington, D.C. 20036-2412
Telephone No. (202) 861-3900
Facsimile No. (202) 223-2085

Perry E. Van Over
Registration No. 42,197